

# Basic article

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## 1 Mathematics

### 1.1 Maths equations

We can put maths, e.g.  $\bar{x}$ , in a line or separately as so:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i.$$

We can align equations:

$$\begin{aligned}\bar{x} &= \frac{1}{3}(1 + 3 + 5) \\ &= 3.\end{aligned}$$

If you would like to reference an equation like Eq (1), this can also be done.

$$\int_{-\infty}^{\infty} f(x)dx = 1. \tag{1}$$

We can also align equations to include comments as so:

$$\begin{aligned} P(X \leq x \cap Y \leq y) &= P(X \leq x)P(Y \leq y) && \text{by independence} \\ &= \int_{-\infty}^x f(x)dx \int_{-\infty}^y f(y)dy. \end{aligned}$$

## 1.2 Matrices

This is a matrix:

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

and so is this

$$\begin{pmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \vdots & \vdots & \dots & \vdots \\ x_{n1} & x_{n2} & \dots & x_{nn} \end{pmatrix}$$

## 2 Images and tables

### 2.1 Images

The scatter plot is in Figure 1

### 2.2 Tables

The five number summary is shown in Table 1.

Table 1: Five number summary.

Min	$Q_1$	Median	$Q_3$	Max
1	2	3	4	5

## 3 Text

### 3.1 Text and lists

A spectre is haunting Europe – the **spectre of communism**. All the powers of old Europe have entered into a holy alliance to exorcise this spectre: Pope and Tsar, Metternich and Guizot, French Radicals and German *police-spies*.

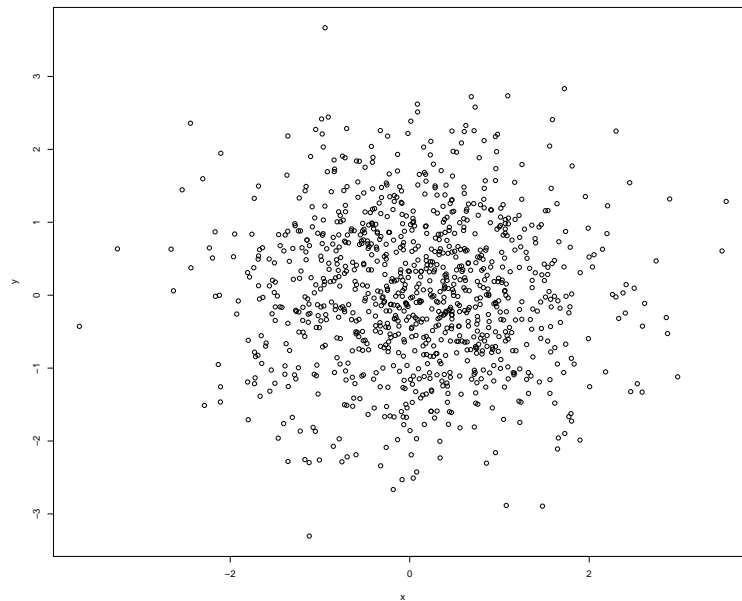


Figure 1: Scatter plot of x and y.

Where is the party in opposition that has not been decried as communistic by its opponents in power? Where is the opposition that has not hurled back the branding reproach of communism, against the more advanced opposition parties, as well as against its reactionary adversaries?

Two things result from this fact:

1. Communism is already acknowledged by all European powers to be itself a power.
2. It is high time that Communists should openly, in the face of the whole world, publish their views, their aims, their tendencies, and meet this nursery tale of the spectre of communism with a manifesto of the party itself.

To this end, Communists of various nationalities have assembled in London and sketched the following manifesto, to be published in the English, French, German, Italian, Flemish and Danish languages.

### 3.2 Code

Code can also be inputted with verbatim

```
> x<-rnorm(1000)
> y<-rnorm(1000)
> plot(x,y)
> plot(x,y)
```

## 4 Referencing

For an example of self referencing see Tuke [2008].

## References

Jonathan Tuke. Basic article. *Journal of Stuff that was done by Mancunians*, 1(1):1–3, 2008.